

# A Planner's Guide to Form-Based Codes (FBCs)



Smart Growth / Smart Energy Toolkit



# Overview of Form-Based Codes

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- 1. What are FBCs?**
- 2. Why doesn't conventional zoning work?**
- 3. Why do FBCs make sense?**
- 4. What are the key concepts behind FBCs?**
- 5. What are the key components of FBCs?**
- 6. What are the approaches to FBCs?**
- 7. What are some examples of FBCs?**
- 8. How do we implement FBCs?**
- 9. Further information on FBCs**

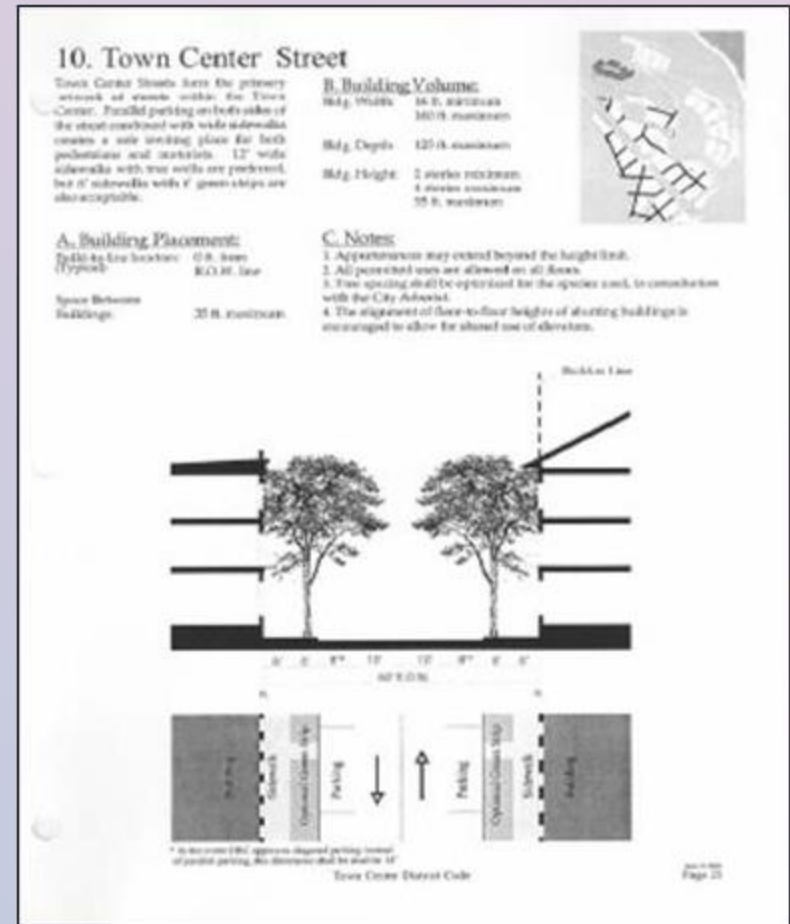
# 1. What are Form-Based Codes?

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- **One of the most effective land use tools for shaping pedestrian-scaled, mixed-use and active urban environments.**
- **Often used with “New Urbanism”, village-style development, or neo-traditional planning.**
- **More concerned with the arrangement and form of buildings than the use that goes on inside them.**
- **Represent an innovative response to undesirable urban sprawl.**

# What is different about Form-Based Codes?

- Use of diagrams and dimensions.
- Specify building massing, height, and relation to the street and public places.
- Specify street and sidewalk widths.



Source: Ventura, CA

## 2. Why doesn't conventional zoning work?

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- It employs a “one-size-fits-all” approach to separate zoning districts.
- Results in a mish-mash of design elements across neighborhoods within the district - a tree-lined sidewalk doesn't always work in all locations.



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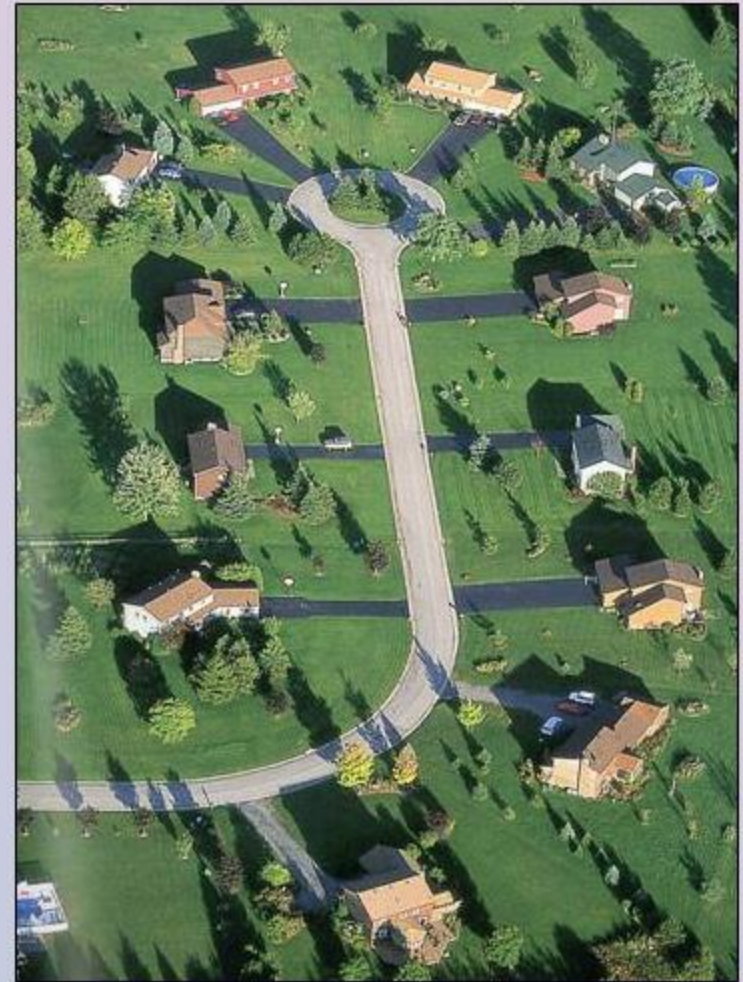


Form Based Codes

# Limitations of Conventional Zoning

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- Separation of land uses.
- Focus on lot size & setbacks.
- Function over form.
- Promotes low density, auto-dependant suburban sprawl.



# ...Suburban Sprawl Development Patterns

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- **Low density outlying developments.**
- **Auto-oriented.**
- **Disproportionate massing and scale.**
- **Incongruent setbacks from traditional neighborhood development.**



### **3. Why do FBCs make sense?**

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- 1. FBCs are prescriptive**
  - Describe what you want rather than don't want.
- 2. FBCs encourage public participation**
  - Leads to better understanding of density.
- 3. FBCs enable incremental growth**
  - Less reliance on a master developer.
- 4. FBCs work well in established communities.**
  - Codify the community's existing "DNA".

# Why FBCs make sense (cont.)

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## **5. FBCs are easier to understand**

- **More concise and organized for visual access.**

## **6. FBCs streamline permitting**

- **Defining building forms and public infrastructure.**

## **7. FBCs are enforceable**

- **Based on regulatory compliance with stated design standards for the public realm.**

## 4. What are the concepts behind FBCs?

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- Based on a physical plan or shared vision for a specific place or community.
- Priority on designated form, more than use or density.
- Buildings shape the public realm using the Urban Transect model.



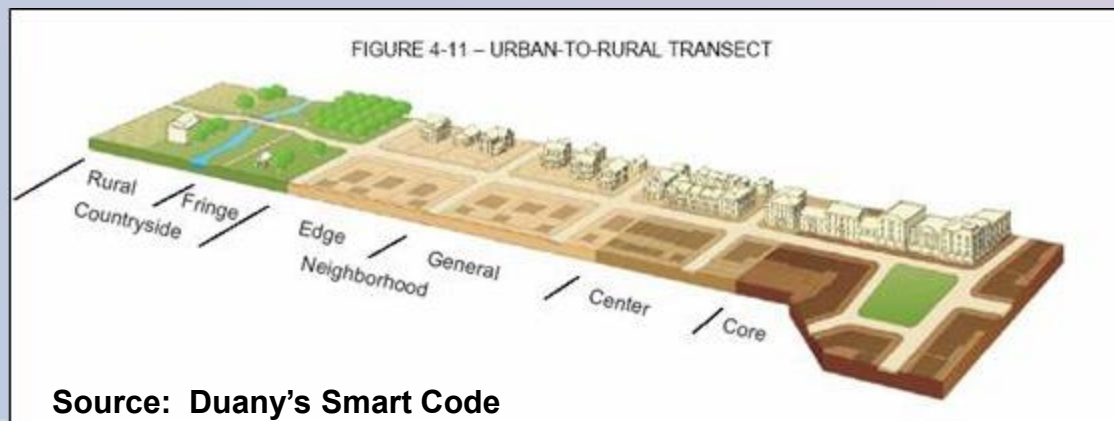
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Form Based Codes

# What is the Urban Transect?

- It is a classification system that delineates zones at various stages through the continuum of rural to urban landscapes;
- Each category has its own specific characteristics.
- The Transect is used to develop unique FBCs for each zone within a community.
- It simplifies the permitting process for encouraging traditional neighborhood developments across 6 main landscape zones.



# Rural Preserve Zone

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# Rural Reserve Zone

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# Suburban Zone

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# General Urban Zone

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# Urban Center Zone

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# Urban Core Zone

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## **5. What are the key components of a FBC?**

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- A. Regulating Plan**
- B. Definitions/ Glossary**
- C. Public Space/ Street Standards**
- D. Building Form Standards**
- E. Architectural Standards (Optional)**

# A. Regulating Plan

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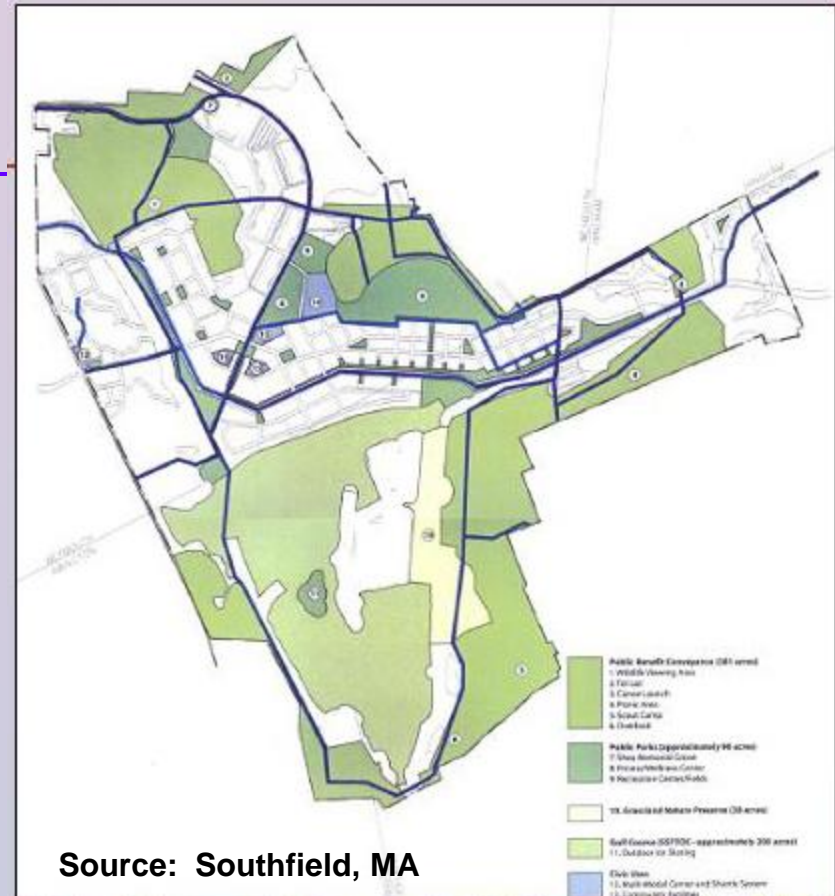
- Based on clear community intentions regarding the physical character of the area being coded.
- The Regulating Plan designates the key locations or “zones” where different building form standards apply.
- Zones often based on the Transect.



Source: Duany's Smart Code  
Form Based Codes

# Regulating Plan (cont.)

- **Transect Zones**
  - Urban – Rural Districts
- **Street Regulating Plan**
  - Network and Hierarchy
  - Utilities
  - Landscaping
  - Public Amenities
    - Buildings, Parks, Open Space
    - Public Realm



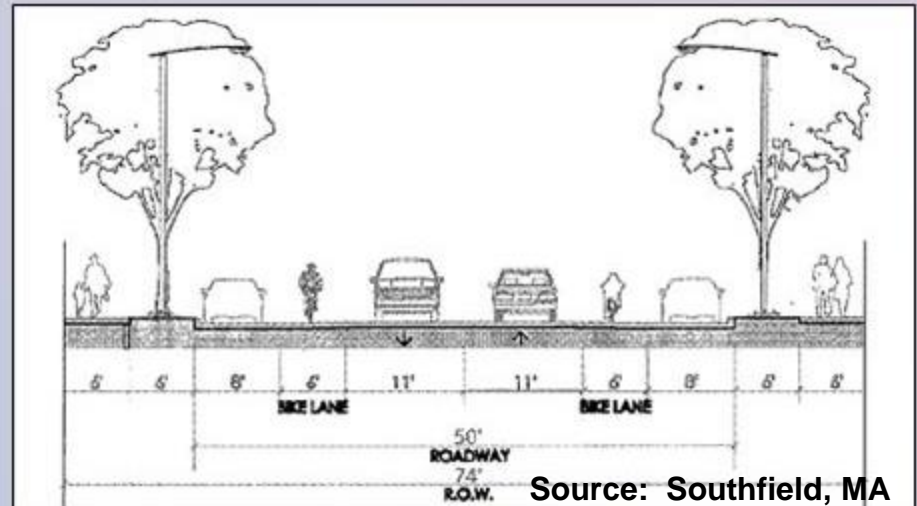
Source: Southfield, MA



# What is the Public Realm?

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- Streets
- Street trees
- Sidewalks
- Street Furniture
- Lighting
- Landscaping
- Public Buildings
- Open Space

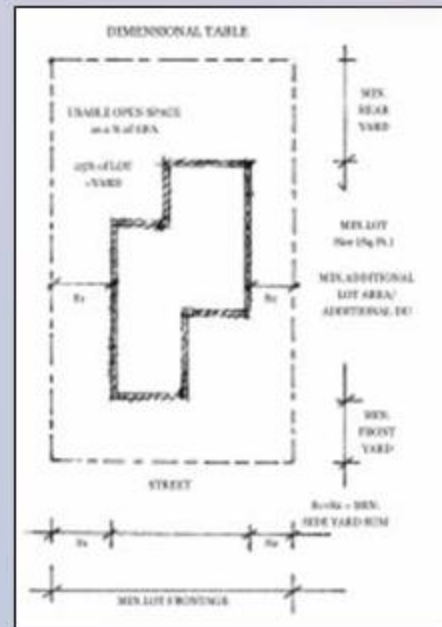


# B. Definitions / Glossary

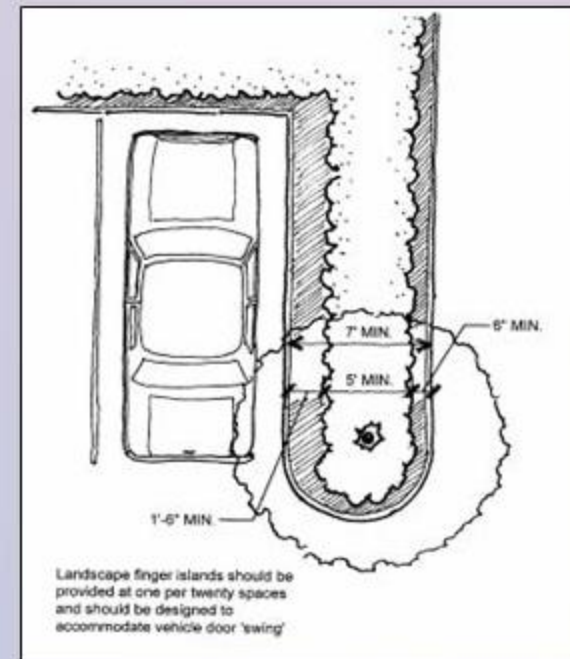
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- FBCs use an annotated glossary to define the precise use of technical terms.
- Illustrative diagrams, images and plans.
- Examples:
  - Building Height
  - Usable Open Space
  - Parking Lot Design

*Impervious Surface* - All roofed building areas, all other surfaces on the ground that have a coefficient of Rational Method of storm drainage system design, Conservation Service Method.



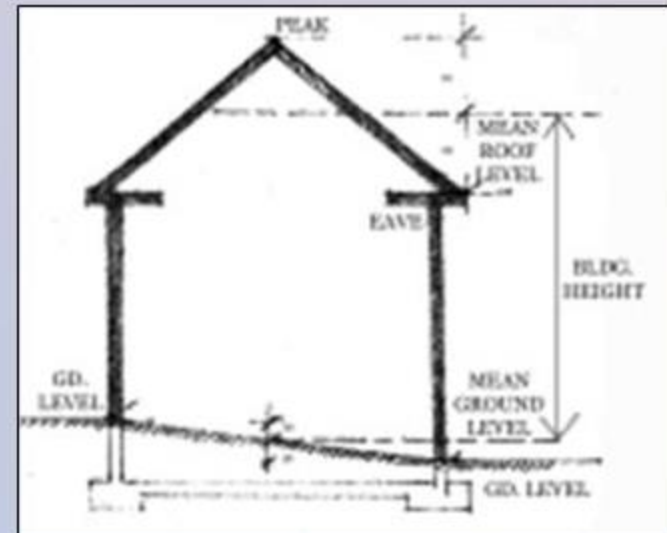
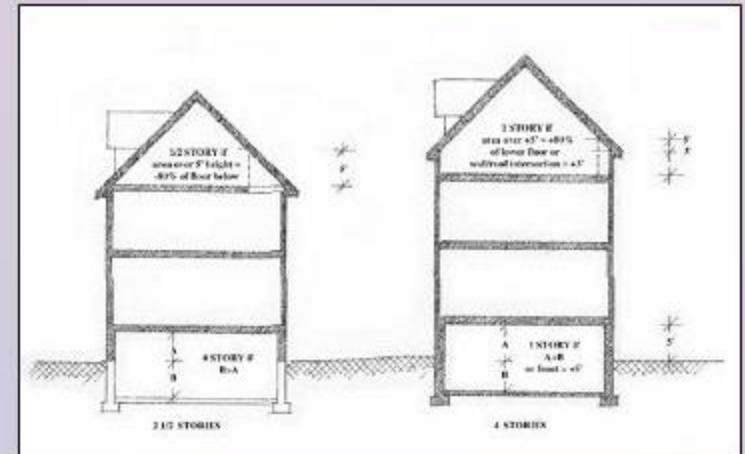
Source: Lowell, MA



Source: Southfield, MA

# Building Height

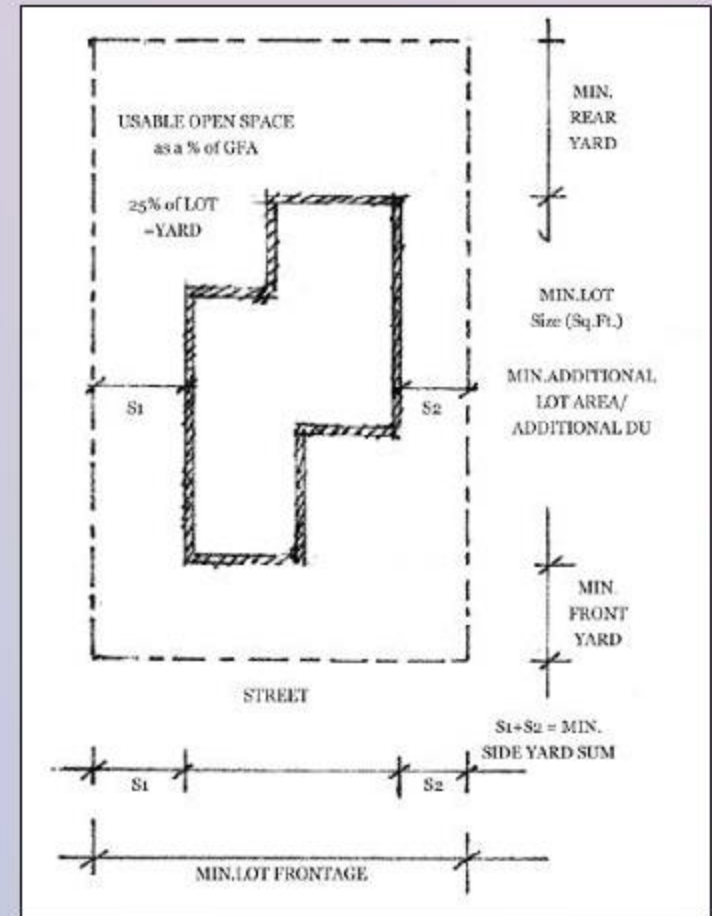
- Multiple roof types
- Dormers
- Stories
- Grades



Source: Lowell, MA  
Form Based Codes

# Usable Open Space

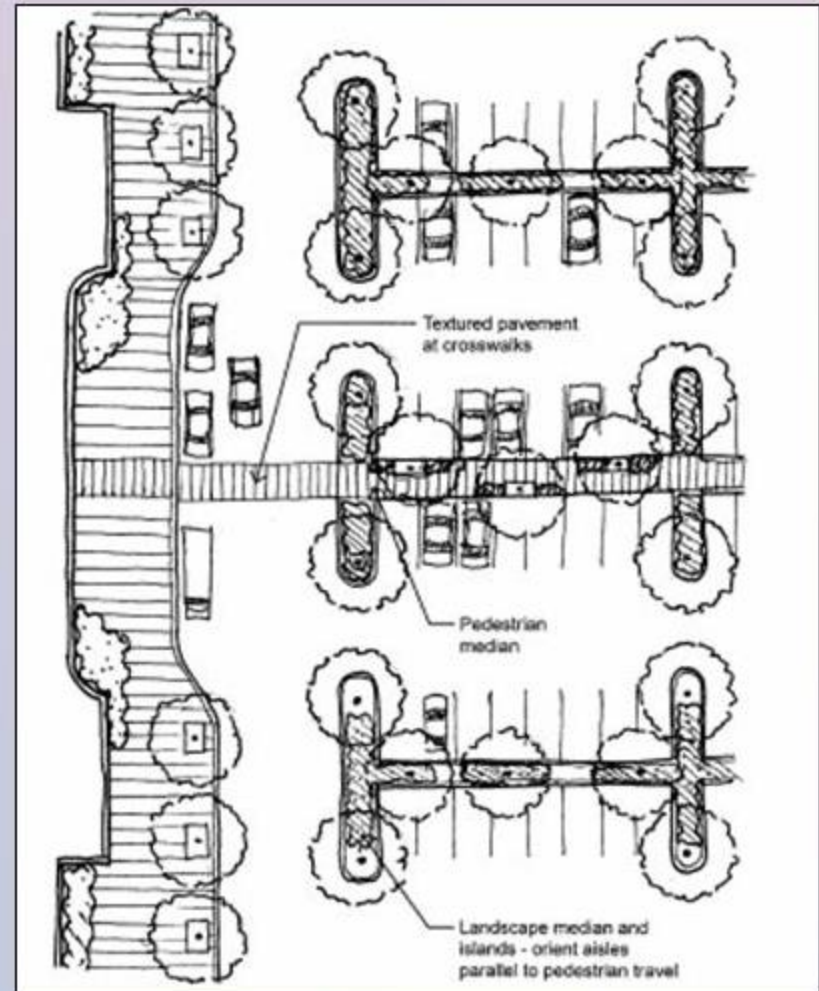
- Side or rearyard setback
- Minimum dimensions
- Landscaping



# Parking Lot Design

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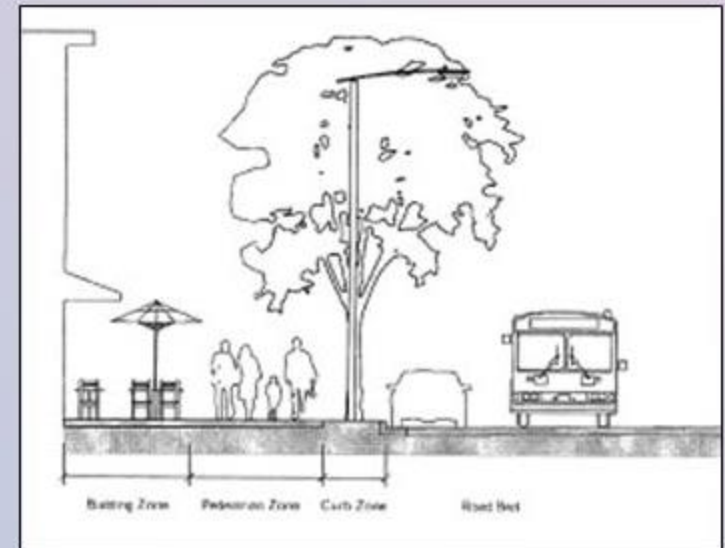
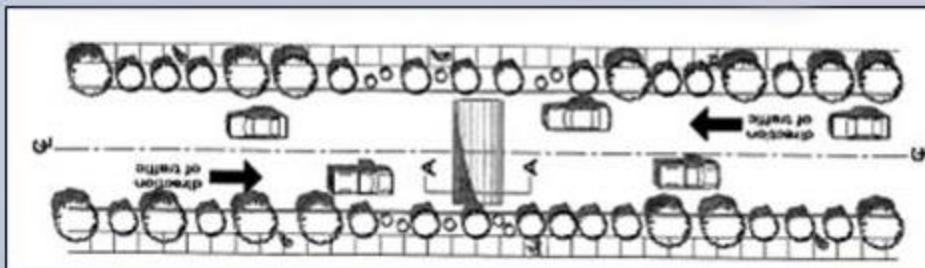
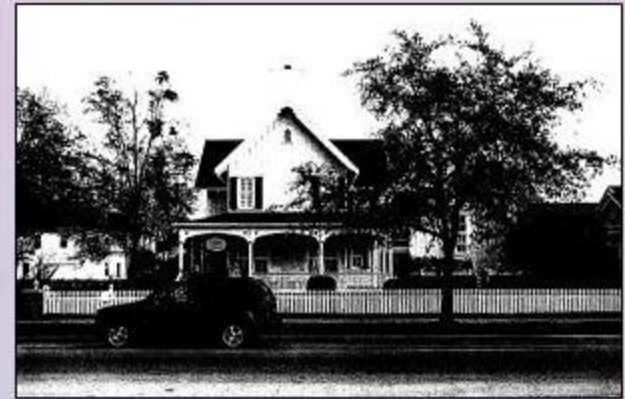
- Landscaping
- Pedestrian Accommodation



# C. Public Street / Space Standards

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- Design specifications for elements within the public realm such as streets, sidewalks, street furniture, parks, drainage and landscaping.
- Comprehensive design standards including...



# Driveways

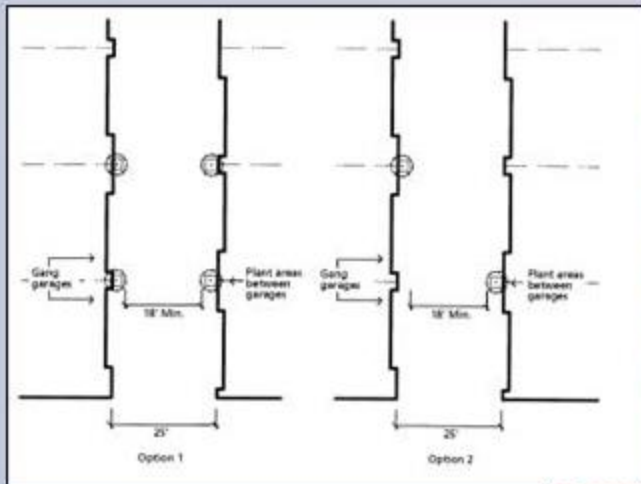
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- **Width, surface, grade, location based on transect location and impact on public realm.**

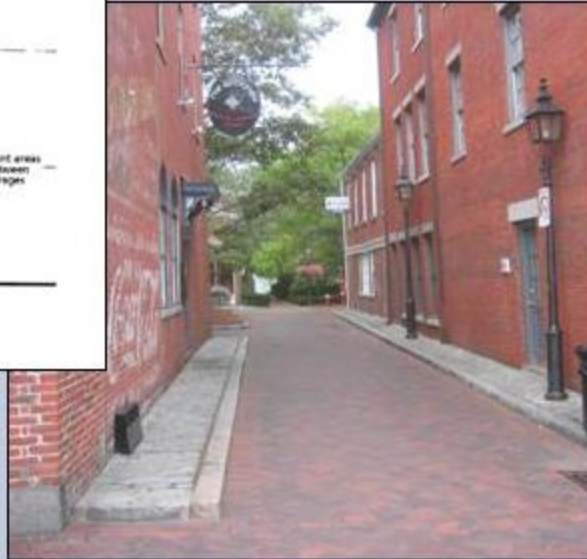


# Alleys

- Enhance pedestrian circulation.
- Service entrances and access to parking.



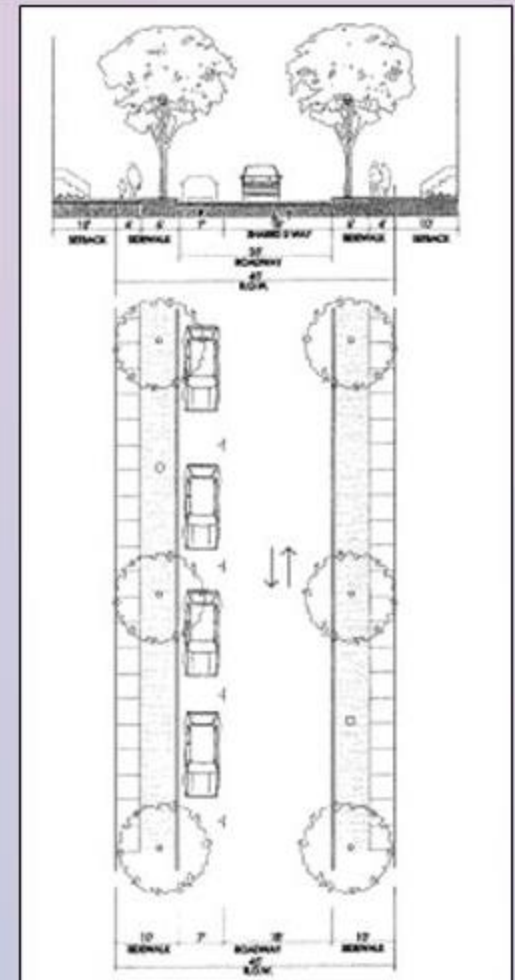
Source: Southfield, MA



# Small Neighborhood Streets

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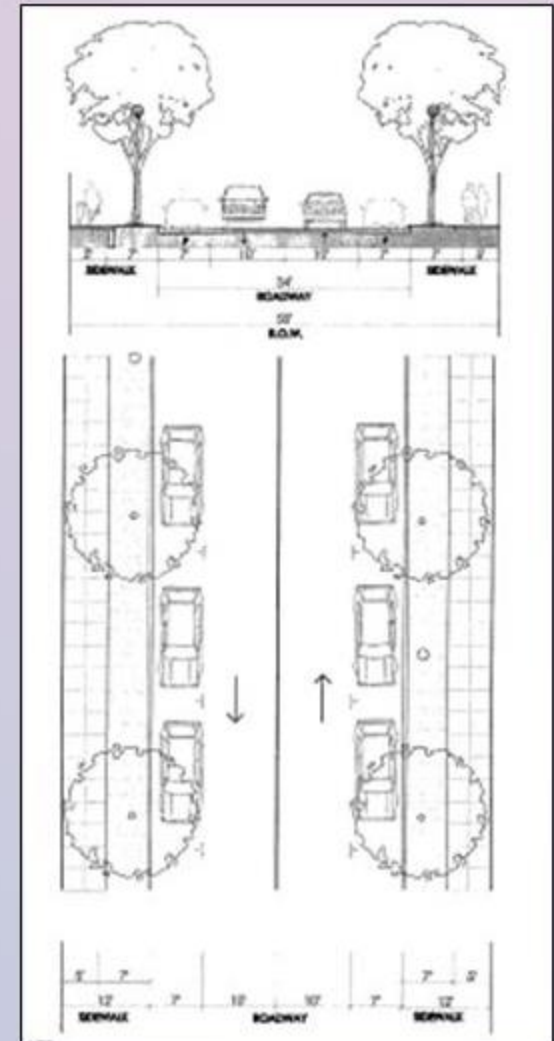
- **Narrow width**
- **Sidewalks**
- **Turf-belt with shade trees**



Source: Southfield, MA

# Main Neighborhood Streets

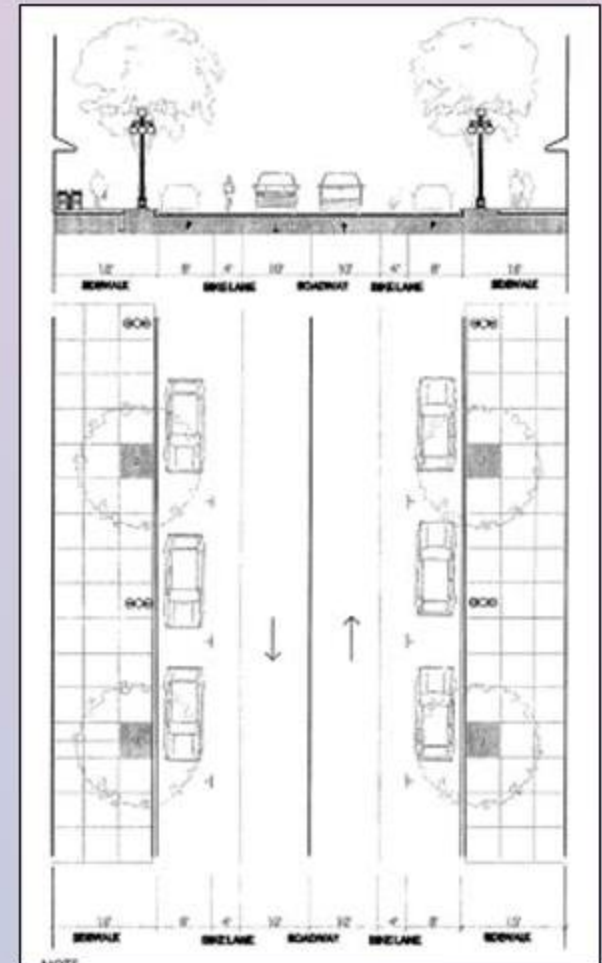
- On-street parking
- Turf-belt with shade trees
- Bike lanes



# Downtown Commercial Streets

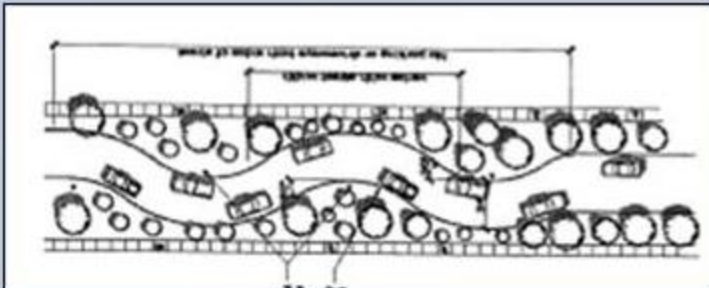
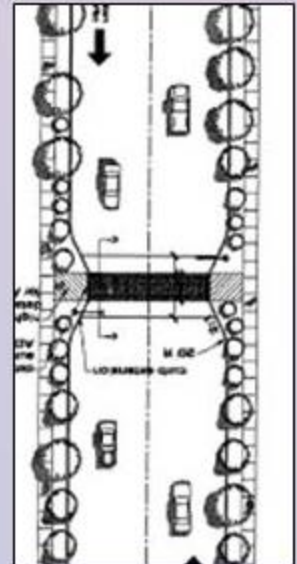
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- Wider sidewalks
- Street trees, lighting & furniture
- On-street parking



# Traffic Calming Measures

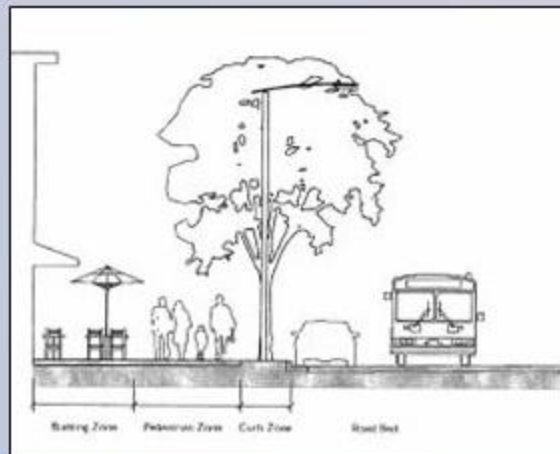
- Roundabouts
- Raised crosswalks
- Textured crosswalks
- Bulb-outs
- Chicanes
- Bike lanes
- Street trees



# Sidewalks

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- **Width, surface, and setback based on transect location and land use.**



Source: Southfield, MA

# Crosswalks

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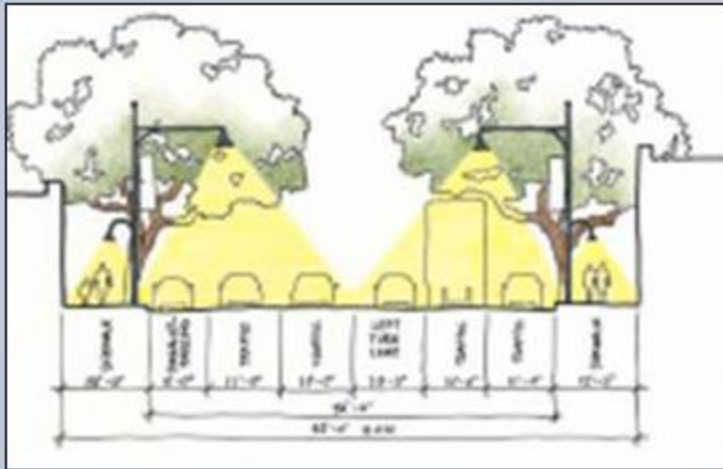
- **Width, surface and texture based on transect location and land use.**



# Lighting

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- Pedestrian scale
- Historic preservation
- Public safety



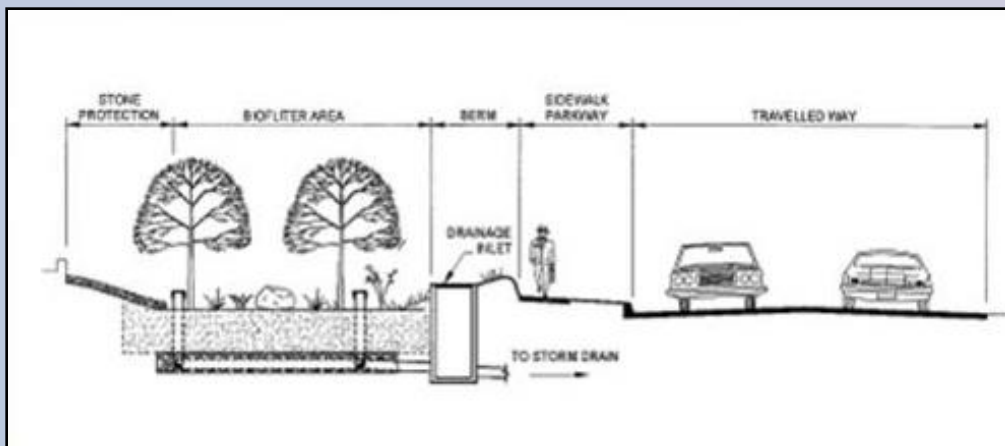
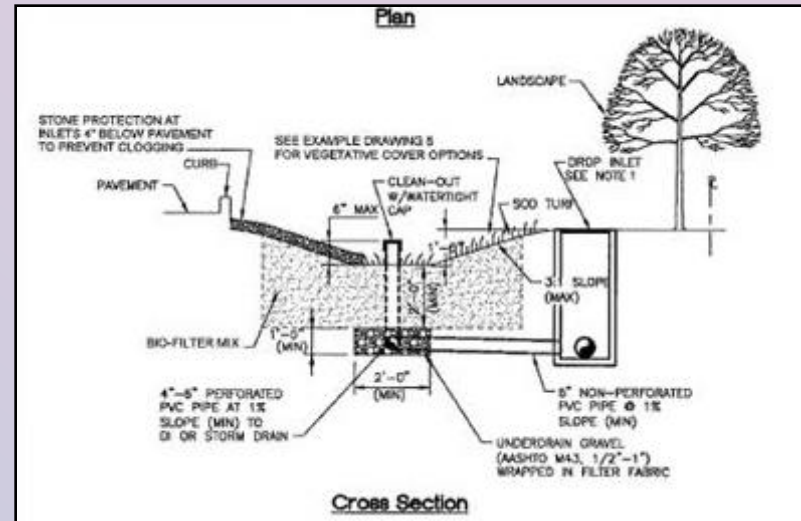
Source: Form-Based Codes Institute  
Smart Growth / Smart Energy Toolkit



Form Based Codes

# Drainage

- Low Impact Development (LID).
- Bio-filters, water quality swales, rain gardens, etc.

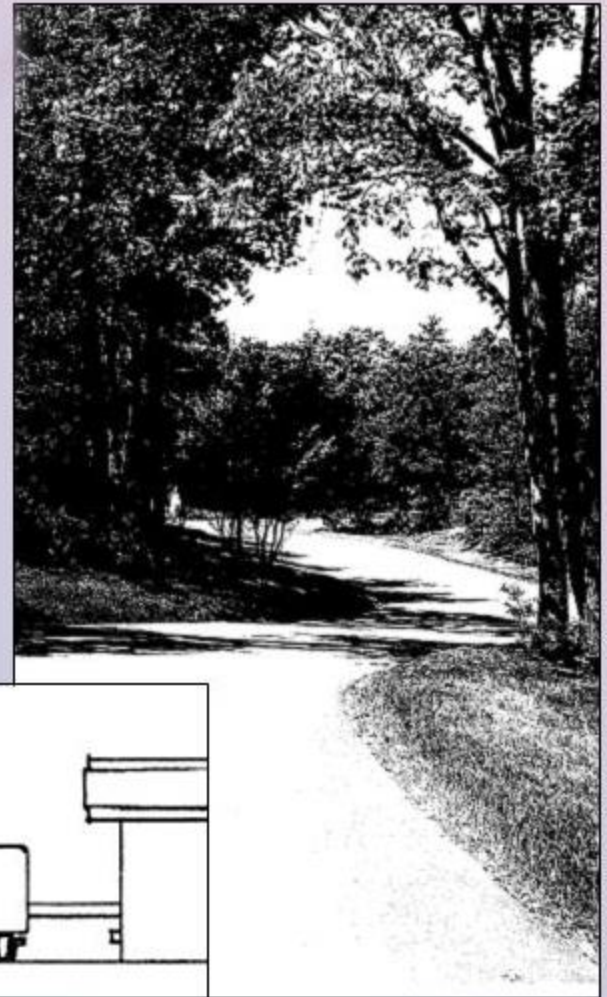
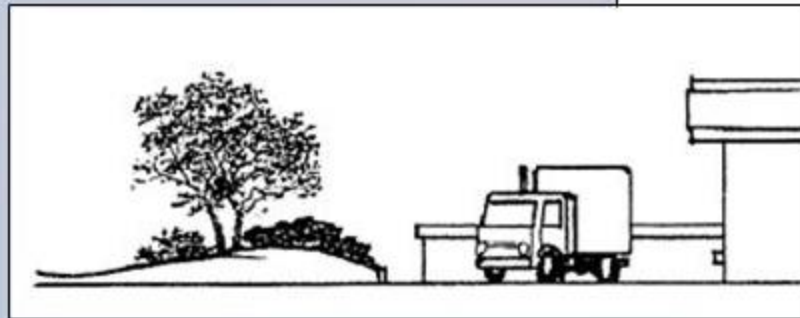
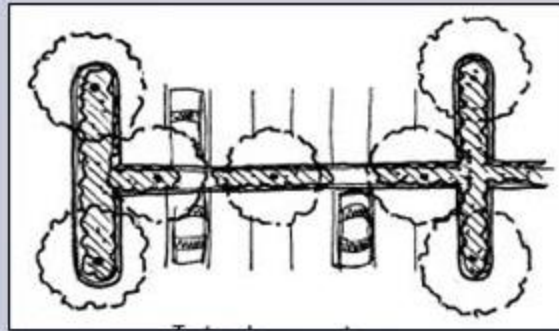


Source: Southfield, MA

# Landscaping

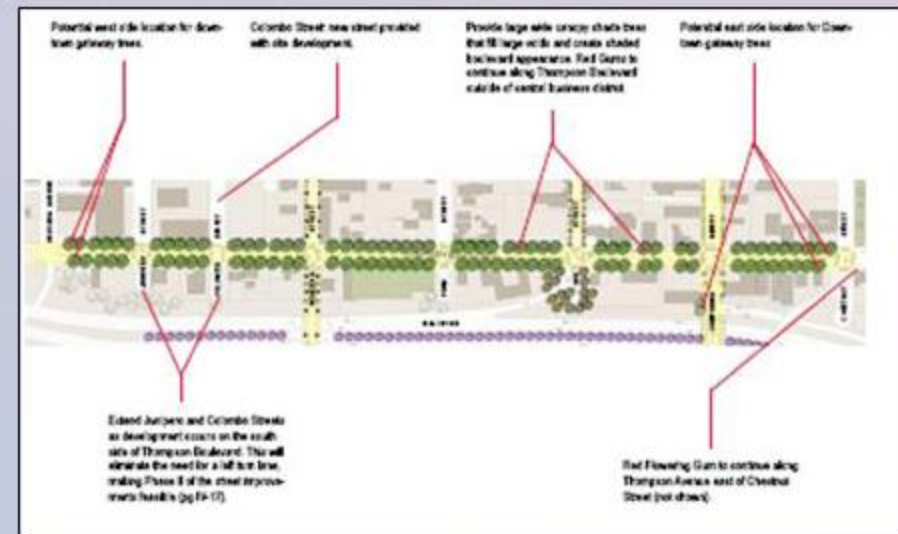
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- Turf-belts, pocket parks, parking islands, service areas, etc.



# Street Trees

- **Species, planting locations and spacing based on transect zone and land use.**



# Street Furniture

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- Benches, trash receptacles, way-finding signs, etc..



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Form Based Codes

# Parks and Open Spaces

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- Urban parks and greenways.
- Rural conservation areas.



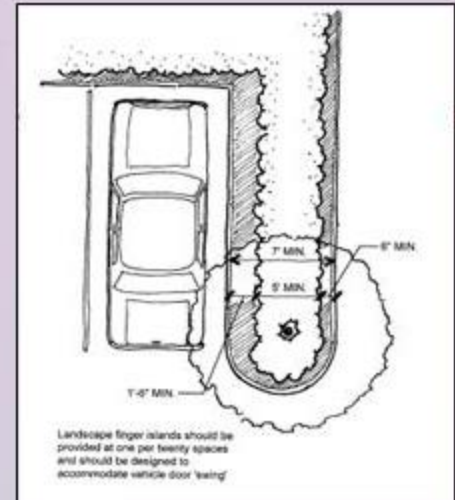
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Form Based Codes

# Parking Lots

- Landscape buffers, shade trees, texture, pedestrian circulation, etc..



# Public Transit

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- **Train stations, bus stops, bicycle facilities, etc..**

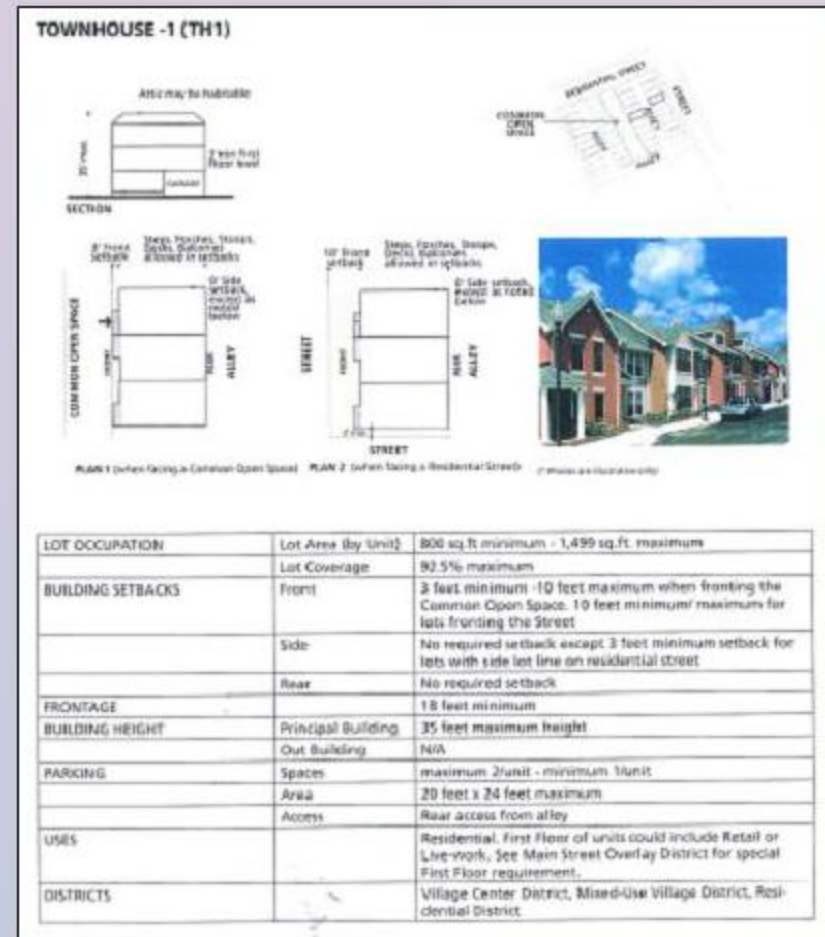


Source: Southfield, MA



# D. Building Form Standards

- Controls building placement, orientation, features and functions such as height, massing, setbacks, parking and the use of buildings.
- Examples include:
  - Building typology & placement
  - Frontyard setbacks
  - "Build-to" lines
  - Building heights
  - Frontage
  - Parking & Land use



Source: Southfield, MA

# Building Typology

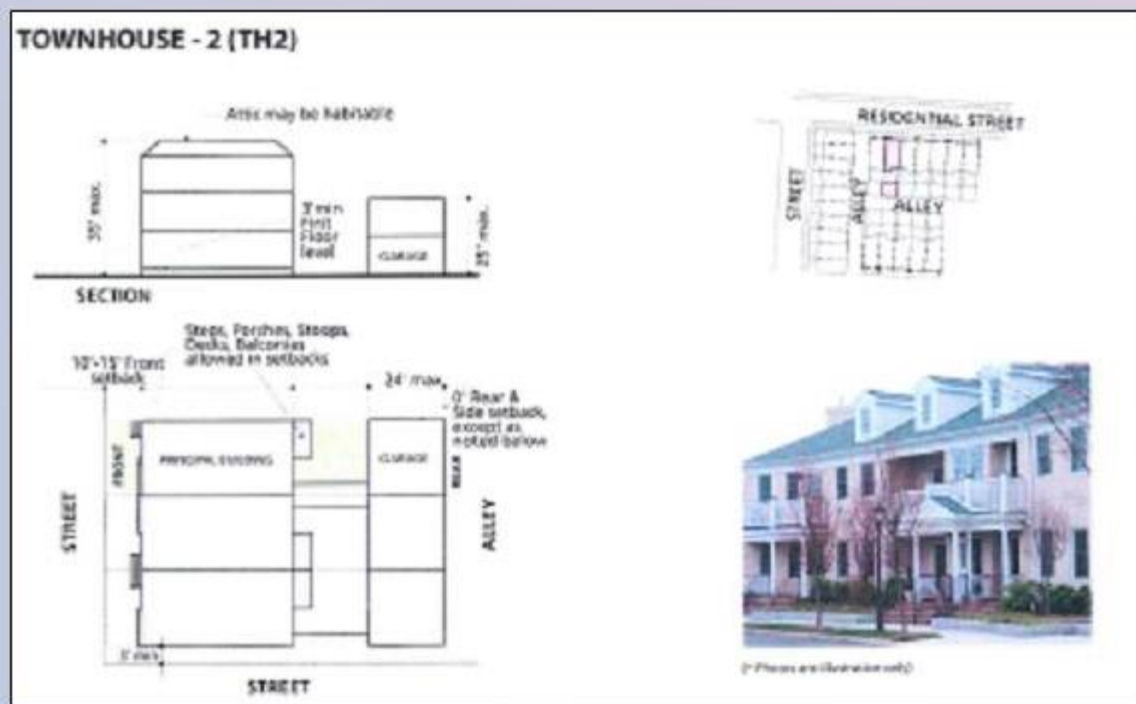
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- **Single Family Dwelling**
- **Accessory Units**
- **Duplex, Multifamily (2,3, 4+)**
- **Townhouse / Rowhouse**
- **Live/Work**
- **Mixed-Use**
- **Commercial / Office**
- **Retail**
- **Industrial / Research and Development**



# Building Placement

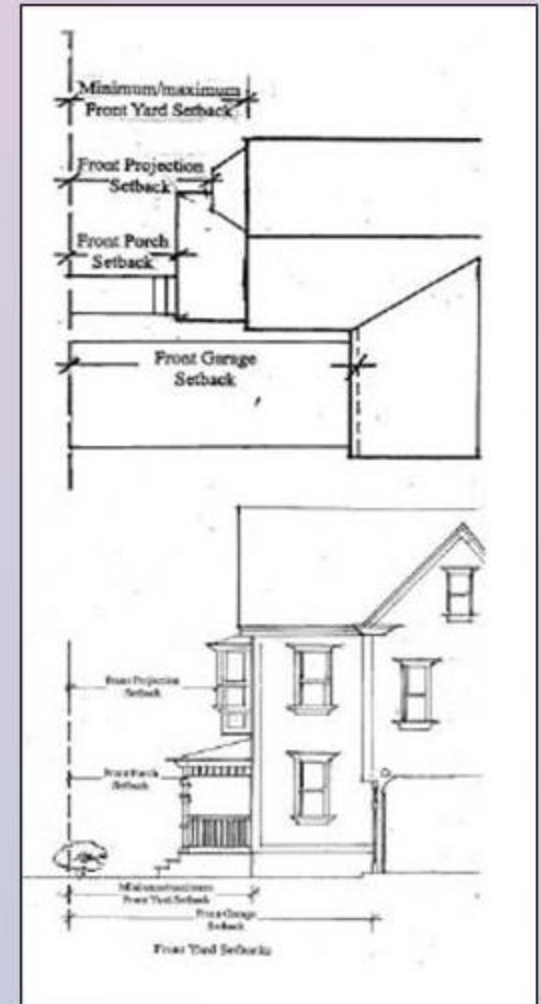
- Controls building placement along the street edge and defines the relationship between other buildings.



Source: Southfield, MA

# Frontyard Setback

- Landscaping the edge.
- Exemptions for projections.
- “Build-to” lines.
- Establishes frontyard setbacks.



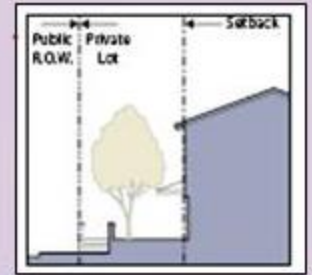
Source: Lowell, MA

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# “Build-to” Lines

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- The location on each lot near the street right-of-way where buildings are placed.
- Used to develop a traditional urban neighborhood with buildings that front sidewalks and help create a pedestrian environment.
- Vary by neighborhood context.



# **“Build-to” Lines along the Transect**

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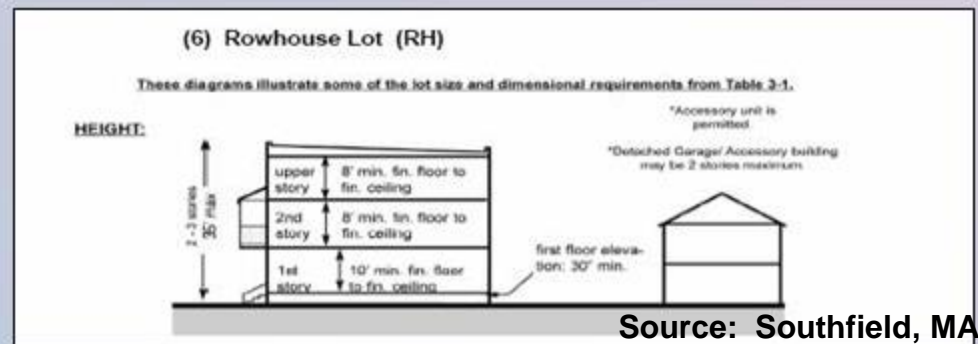
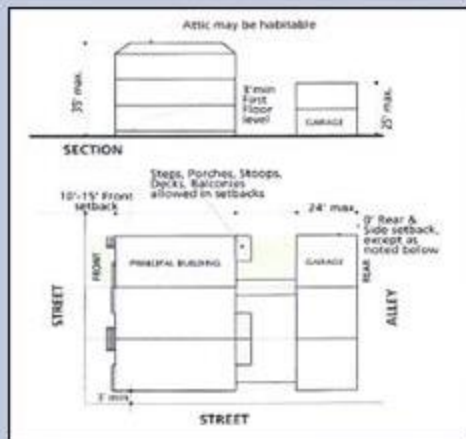
Urban General (10-20 feet)

Urban Center (0-5 feet)



# Building Heights

- FBCs often dictate both minimum and maximum building heights.
- The potential height is found in the Regulating Plan and Building Form Standards.

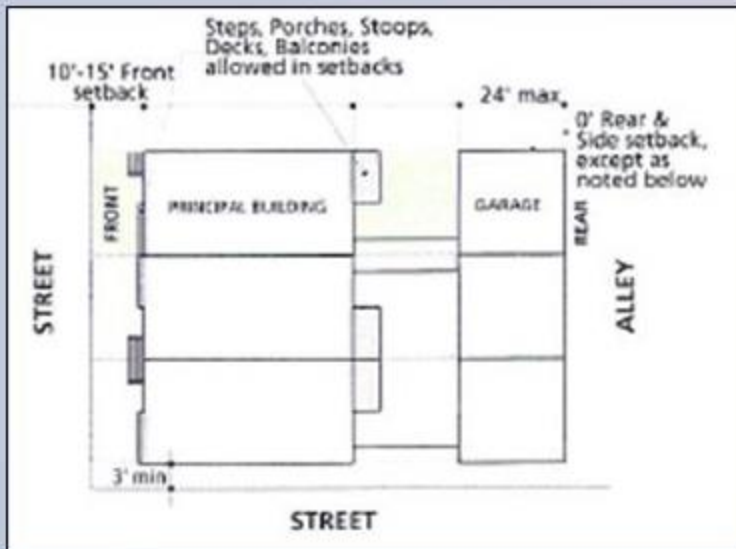


Source: Southfield, MA

# Frontage

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- Flexible lot widths by land use type.
- Promotes traditional ownership & land use patterns.
- Fee simple ownership adds value to property.



# Parking

- Shared parking.
- Reduced for urban areas.
- “Minimum” & “maximum”.



	Zone	Min. Parking Req.	Notes	Shared Parking Chart					
				Weekday: 8AM-5PM	Weekday: 6PM-12AM	Weekday: 12AM-6AM	Weekend: 8AM-5PM	Weekend: 6PM-12AM	Weekend: 12AM-6AM
a. Library or museum open to the public or connected with a permitted educational use and not conducted as a gainful business.	Where Permitted	1 space per 600 sq ft		100	20	5	10	10	5
d. Commercial recreational facility, outdoor	Where Permitted	1 space per 200 sq ft		50	100	5	100	100	5
g. Commercial recreational facility, indoor	Where Permitted	1 space per 200 sq ft		50	100	5	100	100	5
h. Community center, settlement house, humane society, or other similar facility operated by an educational, non-profit, public, or religious institution or organization not conducted as a gainful business.	Where Permitted	1 space per 600 sq ft		100	80	5	100	80	5
i. Club or lodge, private.	Where Permitted	1 space per 100 sq ft		40	100	10	80	100	50
j. Licensed hospital or other licensed establishment for the care of sick, aged, disabled or convalescent persons.	Where Permitted	1 space per 3 beds, plus 1 space per emergency care bed		100	80	80	90	80	80
k. Other health care facility.	Where Permitted	1 space per 3 beds		100	40	10	10	10	10

# Land Use

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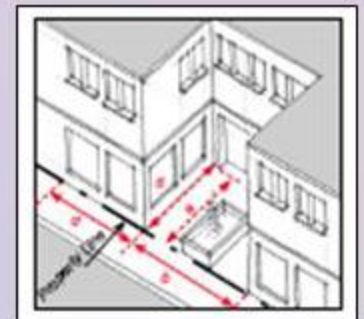
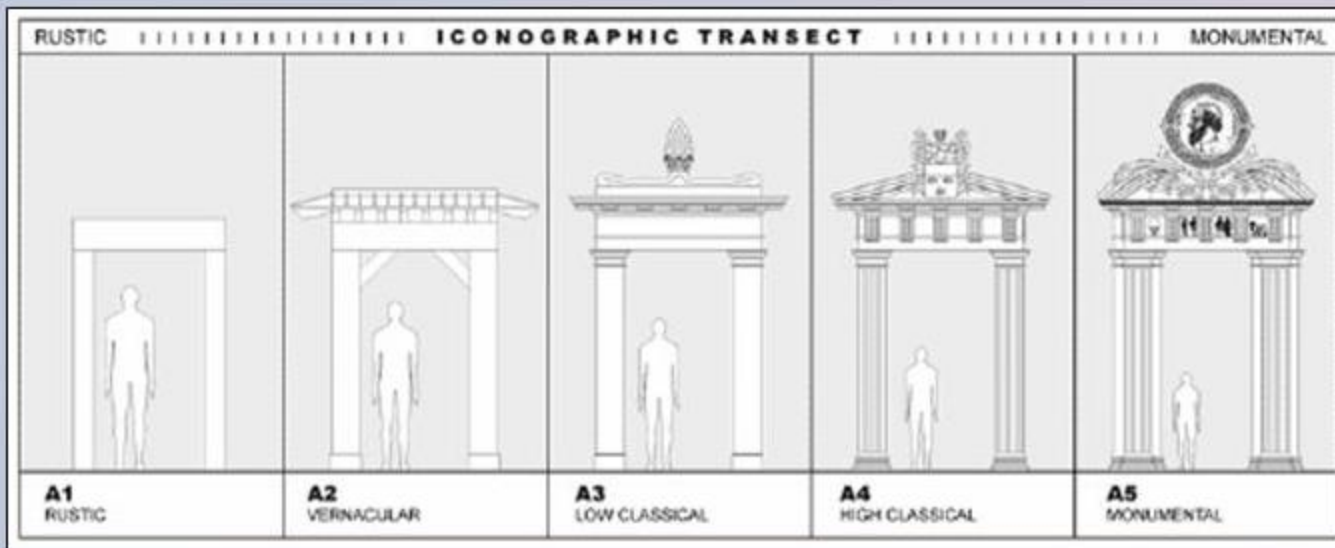
- **Transect-based zones.**
- **Mixed-use.**
- **Flexibility to change uses over time.**



## E. Architectural Standards (optional)

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- Standards and guidelines controlling external architectural materials and quality.
- FBCs include comprehensive design standards including..



Source: Form-Based Codes Institute

# Building Orientation

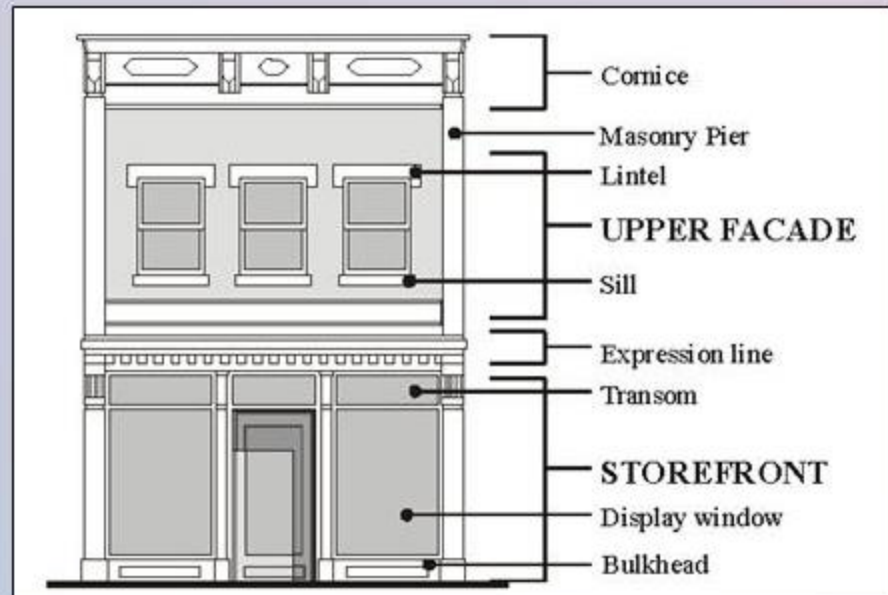
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- **Recognize special character of neighborhood.**
- **Examples include:**
  - Terminal vistas
  - Open spaces
  - Monuments
  - Historic Structures



# Commercial Facades

- Street level primarily devoted to entrances and windows not parking and driveways.
- Banding courses, cornice details and projections to modulate the building massing and scale.



Source: Lowell, MA  
Form Based Codes

# Projections

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- **Activates the public realm.**
- **Improves safety.**
- **Promotes social interaction.**



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Form Based Codes

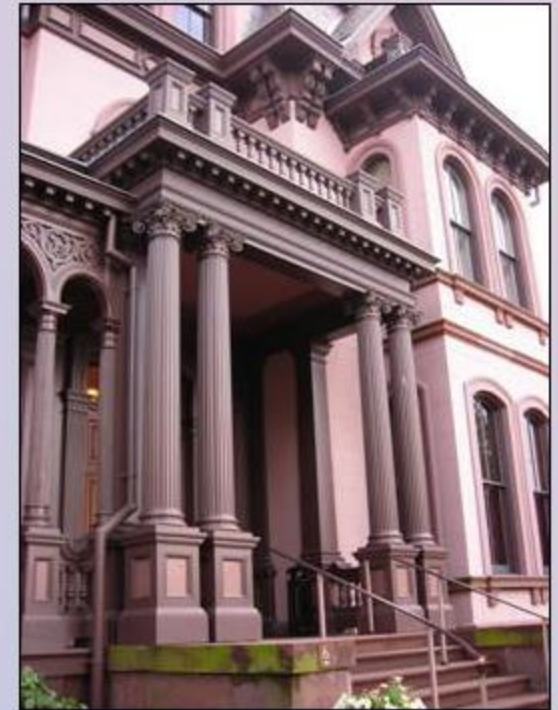
# Projections – Building Massing

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- Building relationship with the Public Realm
- Balconies, porches, decks, etc.



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# Scale and Proportion

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- Use local models and context for building form, window spacing, detailing and façade composition.
- Modulate multi-story buildings with separated cornices, string courses, stepbacks, etc.



# Entrances

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- Main focal point marked with stoops, steps, overhangs or other architectural features like columns or pilasters.



# Signs

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- Flat wall sign or hanging signs only in downtown.
- Externally lit.
- Natural materials, etc.



# Walls, Fences & Hedges

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- Should be used along all property lines which abut street edge.
- Should be used along side and rearyards.
- Materials, maximum height, setbacks, based on transect location and land use.



# Windows

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- **Window mullions.**
- **Operational windows.**
- **Finish materials.**
- **Vertical orientation.**
- **Use of header and sills.**



# Roofs

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- Use local models for pitch, materials & form (i.e. gables, hipped, shed, mansard, gambrel, etc.)
- Downspouts should match gutters in material and finish
- Screen mechanical equipment, etc.



# Stoops and Stairs

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- **Privacy for ground-floor residential uses.**
- **Provides for landscaping to soften edge, etc.**



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Form Based Codes

# Columns, Arches, Arcades, etc.

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- Adds variety and interest
- Focus on entry
- Massing and scale element



# Dormers

- **Size and proportion key along the public realm.**
- **Window size and finish details.**



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Form Based Codes

# Garages

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- **Rear or sideyard locations.**
- **Shared use with alley access.**



## 6. What are the approaches to FBCs?

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- **Quick Fixes**
  - Revise use, building and parking regulations to effectively shape the public realm of the street.
- **Special Purpose / Overlay Districts**
  - Targeted districts/ zones.
- **Comprehensive Code Update**
  - Community-wide regulating plan.

# Quick-Fixes

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- **Include a transect-based zoning map, building form standards and some form of streetscape design standards.**
- **Examples:**
  - **Historic District regulations, which often regulate the form of new buildings in historic districts.**
  - **Building Design Standards, for instance regulating proposed “Main Street” buildings, or taming big boxes.**
  - **New generation of dimensional standards, replacing setback lines with “Build-to” lines.**



# Overlay Districts

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- **Adopt a transect-based overlay district with building form, streetscape, and architectural design standards.**

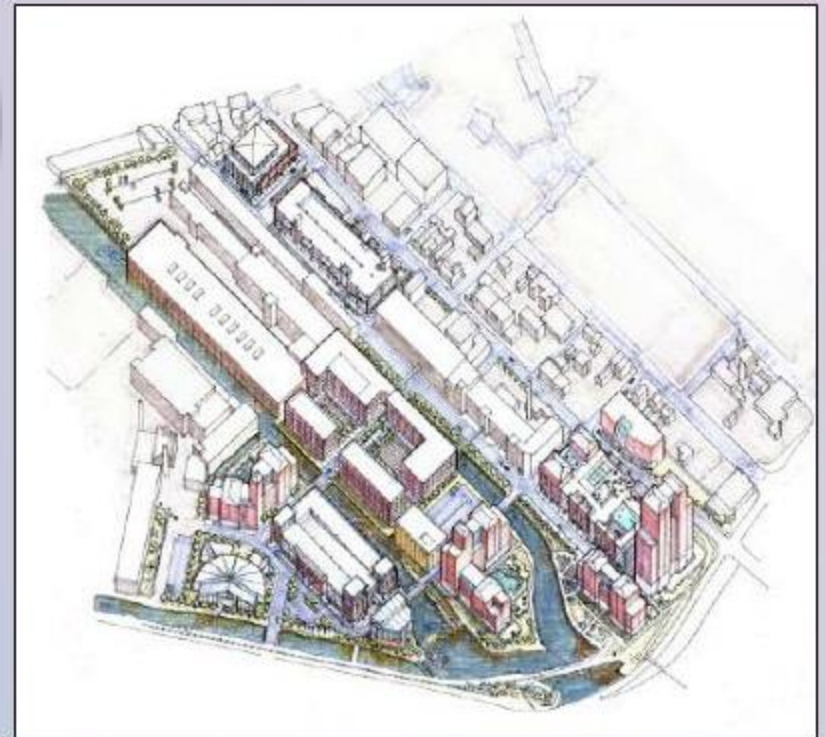
- **Examples:**

- **Amesbury's Smart Growth District**
- **Lowell's Hamilton Canal District**



Source: Amesbury, Ma

**Smart Growth / Smart Energy Toolkit**

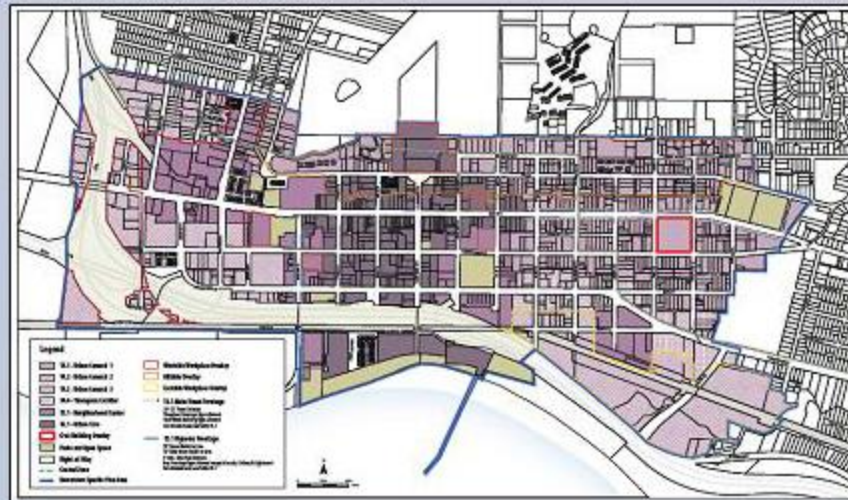


Source: Lowell, Ma

**Form Based Codes**

# Comprehensive Code Update

- Includes a transect-based zoning map, building form standards and streetscape and architectural design standards.
- Examples:
  - Model form-based code is being applied in the downtowns of Ventura, California and Fort Myers, Florida.
  - The former NAS in South Weymouth, MA.



Source: Ventura, CA

## **7. What are some examples of how FBCs work?**

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- **Urban Redevelopment**
- **Historic Preservation**
- **Urban Infill**
- **Adaptive Reuse / Infill**
- **“Build-to” Lines**

# Urban Redevelopment

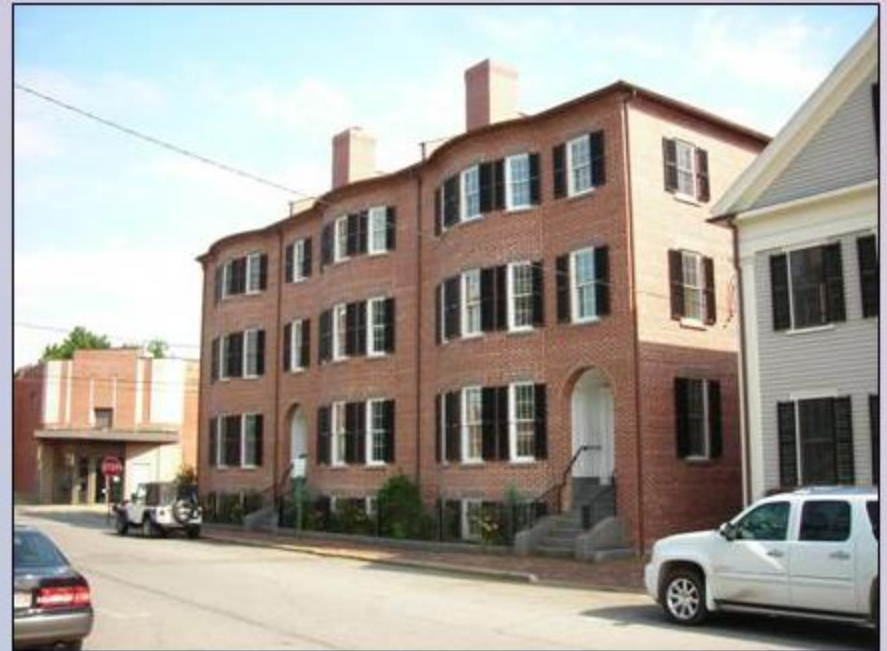
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- Consistent setback, height, scale, bulk, massing and materials.
- Adaptive reuse potential for commercial ground floor uses.

Before



After



# Historic Preservation

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- **Consistent setback, materials, massing, scale and height.**

**Before**



**After**



# Urban Infill

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- Established “Build-to” line.
- Consistent architectural design standards.

Before



After



# Adaptive Reuse / Infill

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- “Build-to” lines, maximum height, shared parking, mixed-use, etc.
- Consistent architectural standards.

Before



After



# “Build-to” Lines

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- Established frontyard setback based on abutting buildings.

Before



After



## **8. How do we implement FBCs?**

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- 1. Existing conditions analysis and inventory.**
- 2. Public visioning / charrette.**
- 3. Regulating Plan and zones.**
- 4. Develop urban standards (streets, blocks, building placement, height, land use, etc.).**
- 5. Develop architectural standards (building or frontage typologies, etc.).**
- 6. Illustrate standards.**

# Where have FBCs been successfully implemented?

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- **Widely used across the U.S.**
- **Chicago and Old Town Alexandria, VA.**
- **Ventura and Petaluma, CA.**
- **Recent use in Massachusetts:**
  - **Lowell & South Weymouth**
  - **40R Districts**
  - **Proposed 43D Districts**

## **9. Where can I find more info on FBCs?**

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- **Town of South Weymouth, Ma**
  - [www.tritown.com](http://www.tritown.com)
- **City of Lowell, MA**
  - [www.cityoflowell.ma.us](http://www.cityoflowell.ma.us)
- **Form-Based Codes Institute**
  - [www.formbasedcodes.org](http://www.formbasedcodes.org)
- **Smartcode**
  - [www.dpz.com](http://www.dpz.com)
- **Other FBC projects**
  - [www.formbasedcodes.org](http://www.formbasedcodes.org)